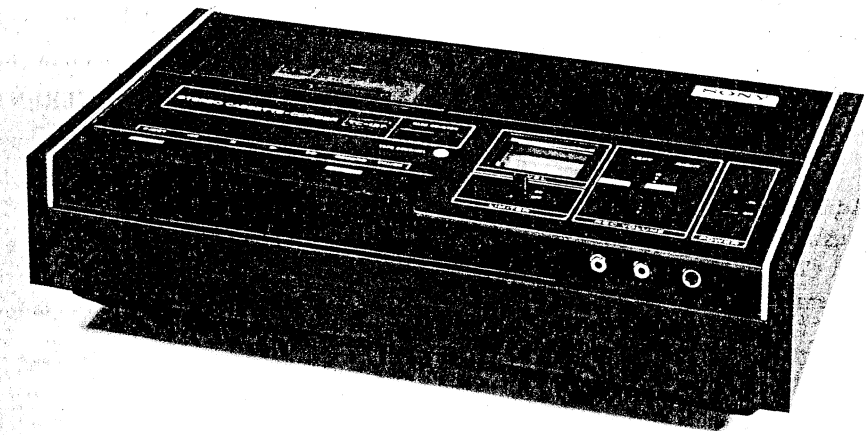
TC-127

General Export Model



ISO

Set using ISO screws

SPECIFICATIONS

Power Requirements: AC 100, 110, 117, 125, 220 & 240V
50/60 Hz 11W

Track System: 4-track cassette stereo

Tape Speed: 1⅞ ips (4.8 cm/s)

Tape: Tape cassette

Frequency Response: 30～12,000 Hz

Signal-to-Noise Ratio: Better than 48 dB

Flutter and Wow: Less than 0.2% (WRMS)

Inputs: Two MIC inputs
Impedance, low
Maximum sensitivity, 0.2 mV (–72 dB)
Two AUX INputs
Impedance, 560 kΩ
Maximum sensitivity, 35 mV (–27 dB)
REC/PB connector
Impedance, 3.9 kΩ
Sensitivity, 17 mV (–33 dB)

Outputs: Two LINE OUTputs
Impedance, 100 kΩ
Output level, 0.775V (0 dB)
HEADPHONE output
Impedance, 8Ω
Output level, 31 mV (–28 dB)
REC/PB connector
Impedance, 8.2 kΩ
Output level, 0.69V (–1 dB)

Semiconductors: 15 transistors and 7 diodes

Dimensions: 15¾ (W) x 3⅞ (H) x 8⅝" (D)
(400 x 97 x 218 mm)

Weight: 10 lb 9 oz (4.8 kg)

SONY®

SERVICE MANUAL

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1. GENERAL DESCRIPTION

The SONY Model TC-127 is a cassette type recorder deck which operates on AC household current featuring as follows:

* Manual control of recording level with slide type level control.
* Easy operation with piano-key type function selector.
* Free from distorted recording of high level inputs by means of the limiter.
* High fidelity sound recording with low noise and low distortion amplifier.
* Three digit counter for tape index.
* Available for rack mounting.

Limiter Circuit

Model TC-127 is provided with a limiter circuit for eliminating a distortion caused by excessively high level input.

The recording level is properly set on the level meter by means of level controls. The actual input signals, however, include high-level pulse-like signals which are not read on the level meter. Such excessively high level input brings about a distorted sound recording due to a nonlinear characteristics of the tape sensitivity. The function of this limiter circuit is fundamentally similar to that of AGC, however the time constant is small resulting to short attack time and decay time compared with that of AGC. This limiter is free from reducing the dynamic range since it acts only for excessively high level pulse-like signals.

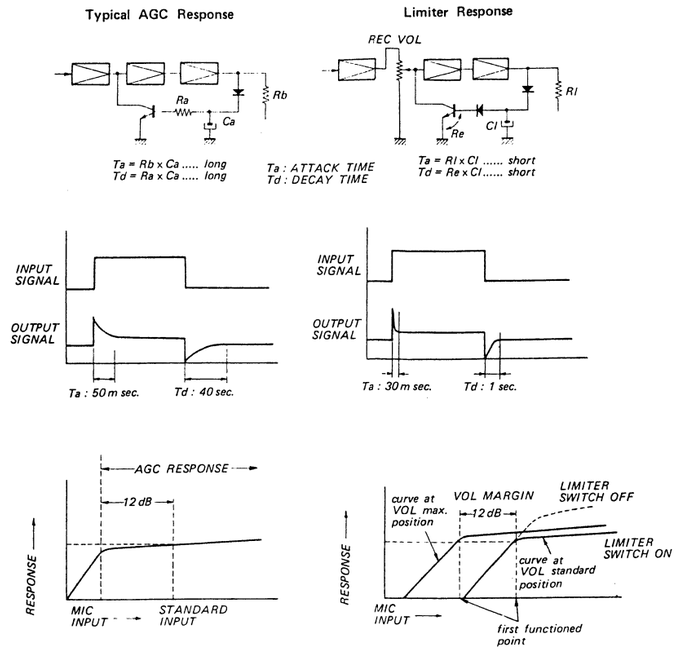
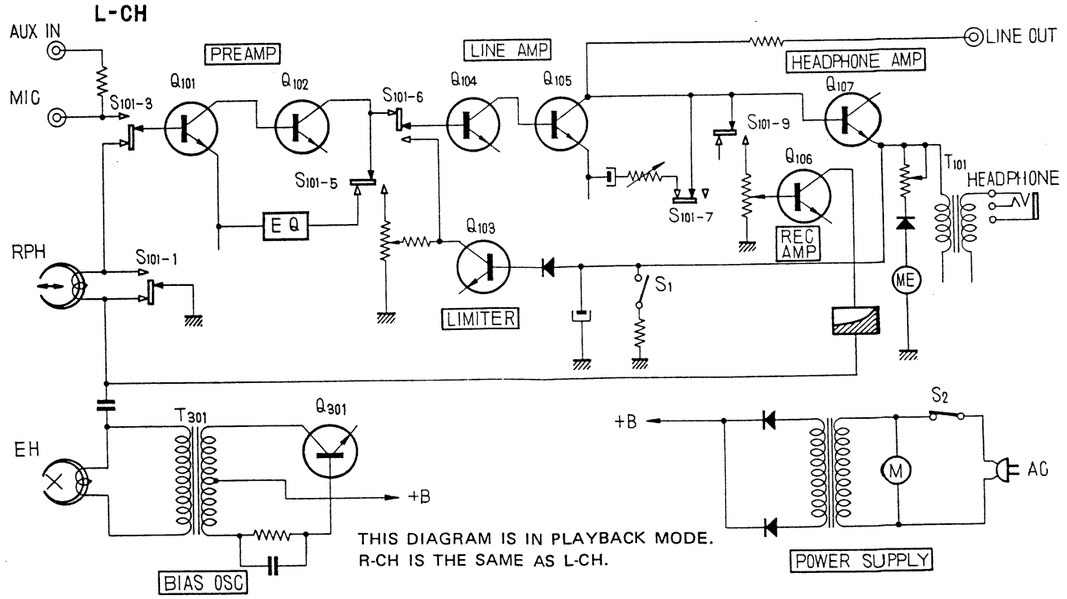


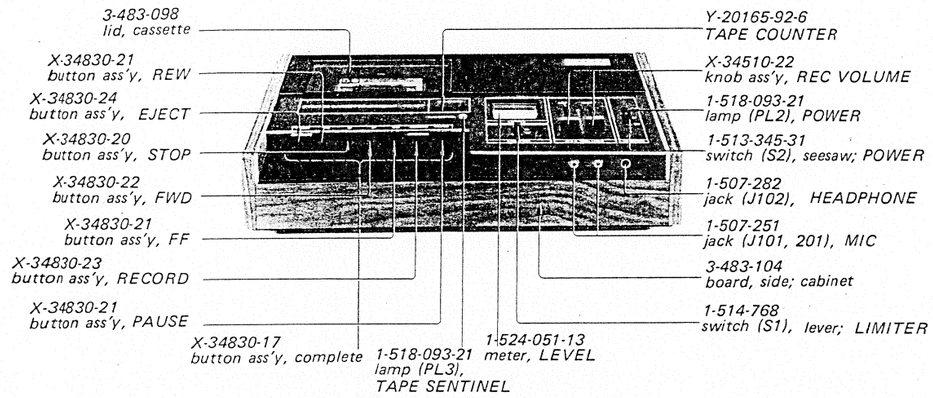
Fig. 1-1. Limiter response compared with AGC

2. BLOCK DIAGRAM

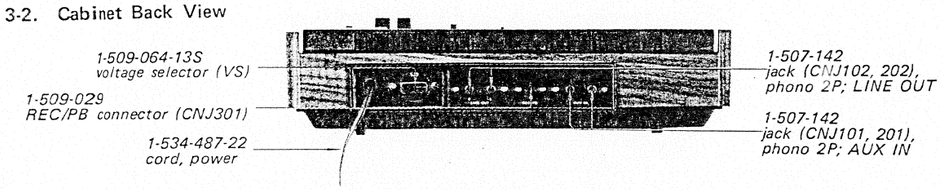


3. MAJOR PARTS LOCATIONS

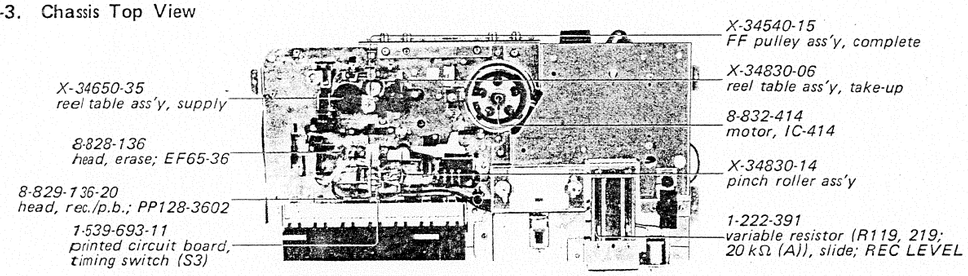
3-1. Cabinet Top View



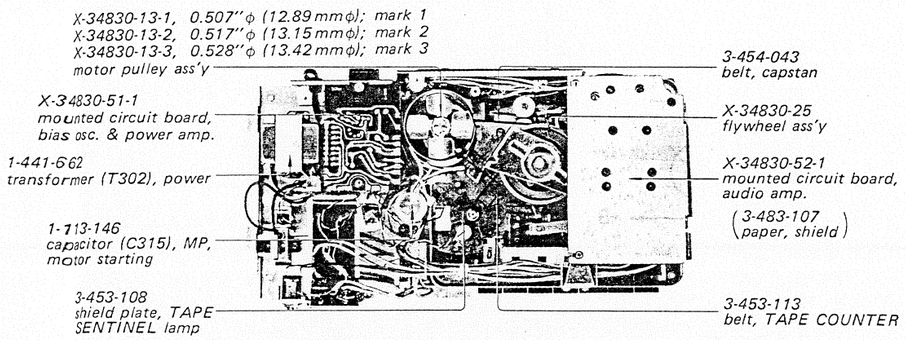
3-2. Cabinet Back View



3-3. Chassis Top View



3-4. Chassis Bottom View



4. DISASSEMBLY

4-1. Cabinet Ass'y Removal

1. **Bottom Cabinet Ass'y**

   Remove the bottom cabinet assembly by removing the six screws (⊕B 3x8) in Fig. 4-1 and also remove the cabinet side board.

2. **Upper Cabinet Ass'y**

   1 Remove the two REC VOLUME knob assemblies in Fig. 4-1 and the voltage selector plug shown in the Cabinet Back View on page 4.

   2 Remove the three screws (two ⊕B 2.6x8 and one ⊕PS 3x5) in Fig. 4-1.

4-2. Printed Circuit Board Removal

1. **Audio Amp. Circuit Board**

   Remove the two screws (⊕PS 3x5) in Fig. 4-2 and move the board in the direction shown by the arrow.

2. **Bias Osc. & Power Supply Circuit Board**

   Remove the two screws (⊕PS 3x5) in Fig. 4-2.

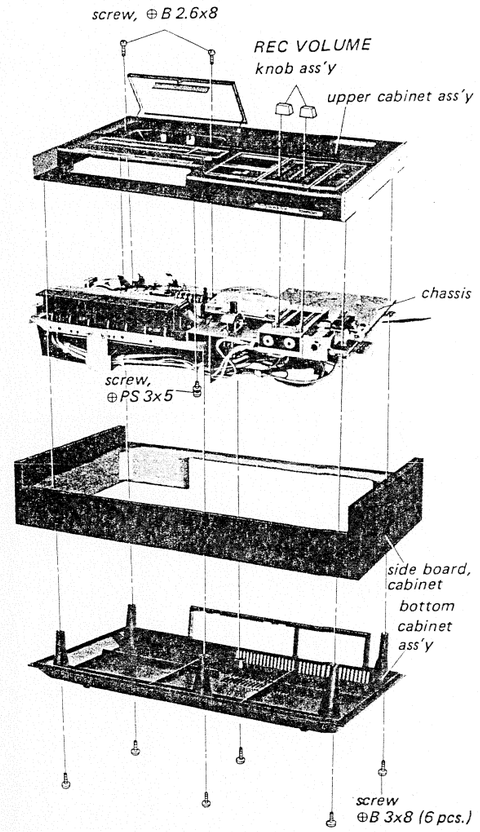


Fig. 4-1. Cabinet ass'y removal

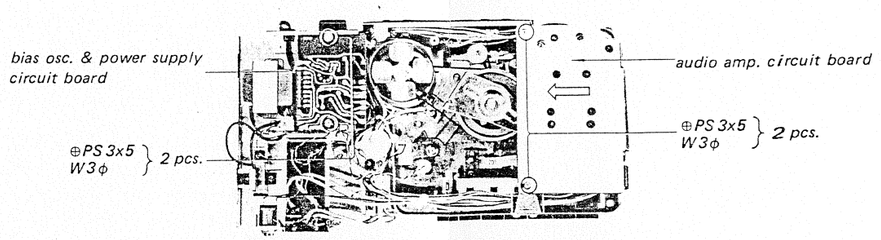


Fig. 4-2. Printed circuit board removal

5. ADJUSTMENTS

5-1. Mechanical Adjustment

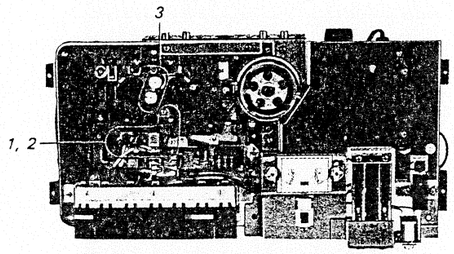


Fig. 5-1-1 Adjusting parts locations (Chassis top view)

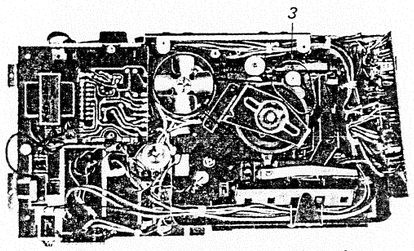


Fig. 5-1-2 Adjusting parts location (Chassis bottom view)

1. Head Height Adjustment

Rec./PB Head Height Adjustment

Note: Make this adjustment before the head azimuth adjustment.

1. Make a tape cassette for height adjustment as shown in Fig. 5-1-3.
2. Set the adjusting tape cassette and adjust the head height adjusting screw for the correct tape position as shown.
3. Repeat FWD-STOP operations several times and check the tape position.
4. Preadjust the head azimuth adjusting screw so that the head cores are parallel with the head deck.
5. Apply lock paint to the head height adjusting screw.

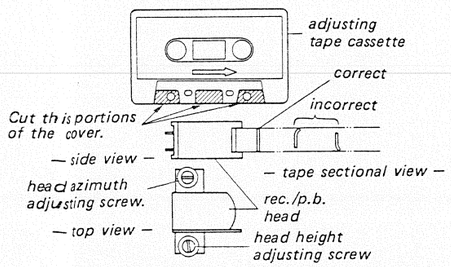


Fig. 5-1-3 Rec./p.b. head height adjustment

Erase Head Height Adjustment

1. Set the height adjusting tape cassette and adjust the erase head height by changing the two spacers located under the head to obtain the correct tape position as shown.
2. Repeat FWD-STOP operations several times and check the tape position.
3. Apply lock paint to the two screws.

erase head spacer / slit / height	Part No.	Numbers of Slit	Height
	3-483-111-01	0	0.220" (5.6 mm)
	3-483-111-11	1	0.224" (5.7 mm)
	3-483-111-21	2	0.228" (5.8 mm)
	3-483-111-31	3	0.232" (5.9 mm)
	3-483-111-41	4	0.236" (6.0 mm)

Note: The left and right erase head spacers should be the same height.

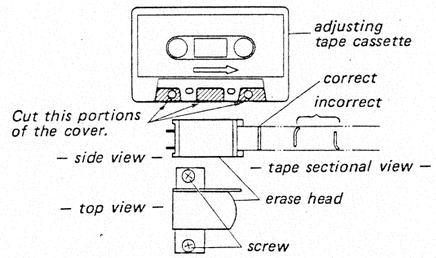


Fig. 5-1-4 Erase head height adjustment

2. Head Deck Position Adjustment

1. Set the height adjusting tape cassette.
2. Check if the tape path is as shown in Fig. 5-1-5 in FWD mode.
3. Take out the tape cassette and adjust the head deck position by loosening the two adjusting screws.
4. Repeat the above procedures until the satisfactory result is obtained.

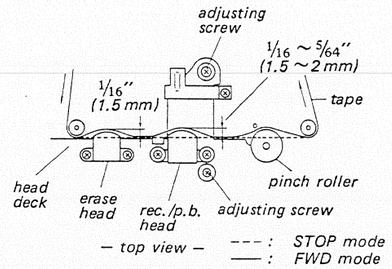


Fig. 5-1-5 Head deck position adjustment

3. FF/REW Pulley Adjustment — in STOP mode —

Pulley Position Adjustment

Adjust the adjusting spring by bending it in the direction shown by the arrow so that the clearance a is equal to the clearance b.

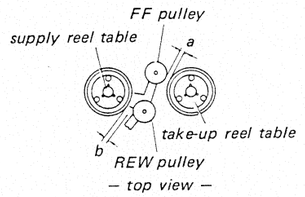


Fig. 5-1-6 Pulley position adjustment

Pulley Height Adjustment

Adjust the height of FF and REW pulleys so that the horizontal center line of the pulleys touches to the reel table tires.

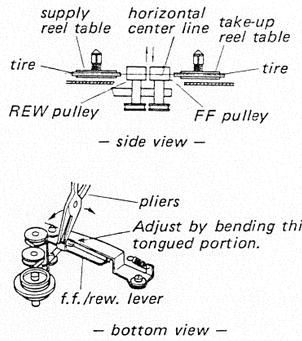


Fig. 5-1-7 Pulley height adjustment

— continued to next page —

Measurement and Checking after the Mechanical Adjustment

1. Button Operation Check

Check that:

a. FWD, FF, REW, REC and PAUSE buttons can be locked. STOP and EJECT buttons cannot be locked.
b. From FWD to FF, REW, PAUSE or STOP mode can be made.
From FWD to REC mode or EJECT operation cannot be made.
From FF to FWD, REW, REC or STOP mode or EJECT operation can be made.
From REW to RWD, FF, REC or STOP mode or EJECT operation can be made.
From REC to FF, REW, PAUSE or STOP mode can be made.
From REC to EJECT operation cannot be made.
c. PAUSE button can be locked by depressing it and unlocked by next depression.
d. The cassette lid opens in PB or REC mode by depressing EJECT button.

2. Torque Measurement

The torque should be as follows.

FWD torque: 0.56 ~ 0.91 oz·inch (40 ~ 65 g·cm)
FF torque: 0.84 ~ 2.1 oz·inch (60 ~ 150 g·cm)
REW torque: 0.84 ~ 2.1 oz·inch (60 ~ 150 g·cm)

3. Wow (Flutter) Measurement

1) Play back the SONY alignment tape WS-48 and read the wow (flutter) at the beginning, the middle and the end of the tape with a wow meter.
2) The maximum value (wow or flutter) should be better than 0.3% (WRMS).

4. Cleaning

After the adjustment, the following parts should be cleaned with cloth or swab dampened with denatured alcohol.

belts
idlers
tires of reel tables
capstan
pinch roller
heads

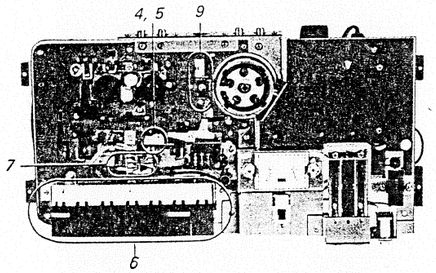


Fig. 5-1-8 Adjusting parts locations (Chassis top view)

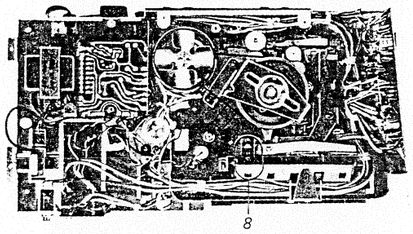


Fig. 5-1-9 Adjusting parts location (Chassis bottom view)

4. Pinch Roller Position Adjustment
– in FWD mode –

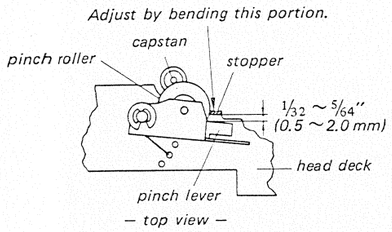


Fig. 5-1-10 Pinch roller position adjustment

5. Pinch Roller Pressure Adjustment
– in FWD mode –

The pinch roller pressure should be between 10 oz (300g) and 14 oz (400g).

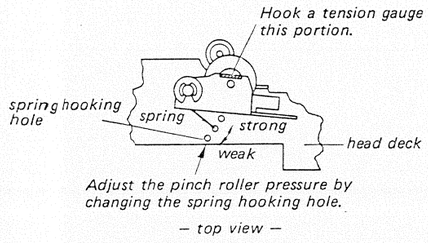


Fig. 5-1-11 Pinch roller pressure adjustment

6. Button Height Adjustment
– in STOP mode –

Adjust the button height so that all the buttons are in the same height.

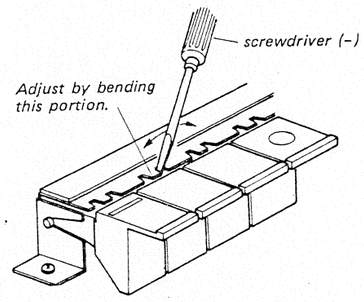


Fig. 5-1-12 Button height adjustment

7. Timing Switch (S3) Adjustment
– in FWD and STOP modes –

1. Loosen the adjusting screws and adjust the position of the switch holding plate so that the following operations are satisfied.
   a. The timing switch (S3) turns on in FWD mode and turns off in STOP mode.
   b. In the process of changing the mode from REC to STOP, the timing switch (S3) should be turned off before the rec./p.b. switch is switched to playback mode.

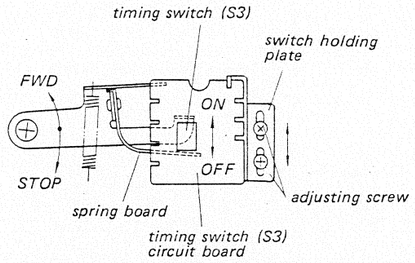


Fig. 5-1-13 Timing switch (S3) adjustment

8. Rec./P.B. Switch (S101, 201) Adjustment
– in FWD and STOP modes –

1. Place the set in REC mode, loosen the adjusting screws and adjust the REC lever (A) position by positioning the adjusting plate so that the following operations are satisfied.
   a. When the REC button is depressed and locked, the rec./p.b. switch is completely switched to REC position.
   b. When depressing the REC button in PB mode, the rec./p.b. switch still keeps PB position.
2. Apply lock paint to the adjusitng screws.

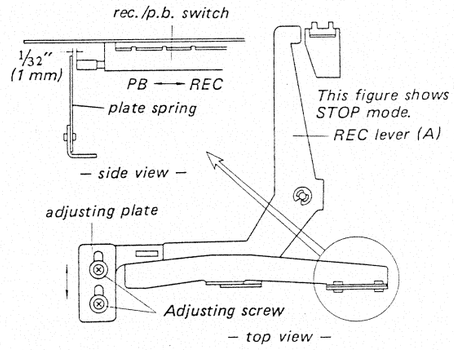
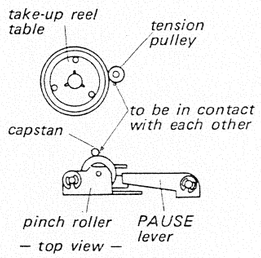


Fig. 5-1-14 Rec./p.b. switch (S101, 201) adjustment

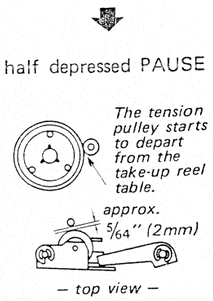
9. PAUSE Timing Adjustment
– in FWD and PAUSE modes –

When depressing the PAUSE button in FWD mode, the tension pulley should start to depart from the take-up reel table just when the pinch roller departs from the capstan approx. 5/64" (2 mm).

in FWD mode



in the half depressed PAUSE button



in PAUSE mode

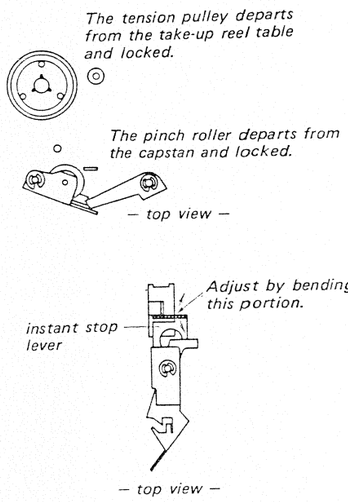

The tension pulley departs from the take-up reel table and locked.
The pinch roller departs from the capstan and locked.
– top view –
Adjust by bending this portion.
instant stop lever
– top view –

Fig. 5-1-15 PAUSE timing adjustment

5-2. Electrical Adjustment

1. Preparation for the Adjustment

1. Before making the adjustment, be sure to clean the heads with cloth or swab dampened with denatured alcohol and to demagnetize the rec./p.b. head with a head demagnetizer (SONY HE-2).
2. After the adjustment, apply lock paint to the parts adjusted.
3. The adjustment items should be made in numerical order.
4. Bias voltage across the terminals of the heads should be read on VTVM as follows:
   rec./p.b. head: approx. 12 ~ 16 V
   erase head: approx. 35 ~ 50 V
5. The following test equipment is to be provided for the adjustment:
   audio signal generator
   attenuator, 600 Ω
   VTVM
   oscilloscope
   resistors, 600 Ω (¼ W), 10 kΩ (¼ W) & 100 kΩ (¼ W)
   blank tape cassette (completely erased)
   SONY alignment tape,
   P-4-L81 (333 Hz, 0 dB)
   P-4-A81 (6.3 kHz, −10 dB)
   SPC-4 (1 kHz, 0 dB)
   non-magnetic screw driver (−)
   1 kHz band pass filter
   distortion meter
   wow meter
   frequency counter
6. Equipment connections are as follows:

INPUT

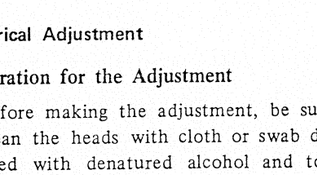


Fig. 5-2-1 Input connection

OUTPUT

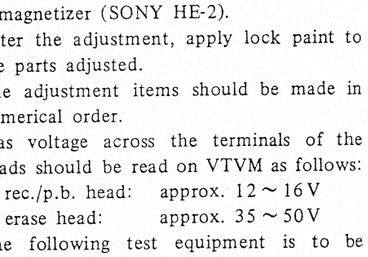


Fig. 5-2-2 Output connection

7. "Normal record mode" described herein means a record mode with the standard input signal level delivered to the MIC jack or AUX IN jack, the REC level control R119 (R219) set for the standard output signal level and the LIMITER switch set at OFF position.
   The standard input and output signal levels are as follows:
   Input signal should be fed to the MIC jack unless otherwise noted.

INPUT

	MIC	AUX IN
Signal Source Impedance	600 Ω	10 kΩ
Standard Input Signal Level	−60 dB (0.775 mV)	−10 dB (0.243 V)

OUTPUT

	LINE OUT
Load Resistor	100 kΩ
Standard Output Signal Level	0 dB (0.775 V)

2. Adjustments

Note: The adjustment should be made for the both channels unless otherwise specified.

(1) Rec./PB Head Azimuth Adjustment

1. Play back the SONY alignment tape P-4-A81 and adjust the azimuth adjusting screw in Fig. 5-2-3 to obtain the maximum LINE output level as for both L and R.

   Note: If there is a difference between L and R LINE output levels, take the medium angle.

2. Adjust the same screw in step 1 with Lissajous figure on the oscilloscope to obtain the same phase of L and R at their maximum LINE output levels.
3. After the adjustment, check the tape path.

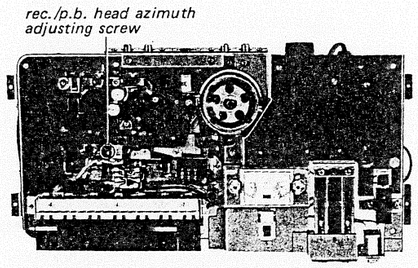


Fig. 5-2-3 Adjusting parts location

(2) PB Level Adjustment

Play back the SONY alignment tape P-4-L81 and adjust the semi-fixed resistor R134 (R234) 50 kΩ (B) in Fig. 5-2-4 to obtain the LINE output level of +2 dB (0.975 V).

Note: The difference between L and R LINE output levels should be less than 1 dB.

(3) PB EQ Adjustment

Play back the SONY alignment tape P-4-A81 and adjust the semi-fixed resistor R117 (R217) 10 kΩ (B) in Fig. 5-2-4 to obtain the LINE output level of −8 dB (0.306 V).

Note: Repeat the preceding PB level adjustment and this adjustment a few times.

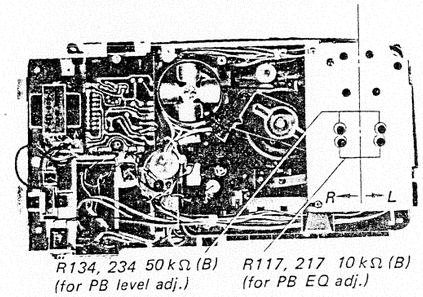


Fig. 5-2-4 Adjusting parts locations

(4) Recording Bias Adjustment

1. Place the set in the normal record mode (signal frequency 1 kHz).
2. Adjust the R136 (R236) to obtain the output signal level of 0 dB at check point C.
3. Decrease the input signal level to −80 dB (0.078 mV), record the signal on a blank tape, vary the signal frequency to 10 kHz and continue the recording.
4. Play back the recorded signals and adjust to obtain the same LINE output level of both 1 kHz and 10 kHz signals by changing solder bridge on the conductors shown in Fig. 5-2-5.

   Note:
   1. In case that LINE output level of 10 kHz signal is higher than that of 1 kHz signal, take a larger value capacitor, and vice versa.
   2. The capacitor can be selected by changing solder bridge on the conductors shown in Fig. 5-2-5 as the following table.

Solder Bridged Conductor No.	Capacitance (pF)
4	15
3	18
2	22
1	27
4 and 3	33
4 and 2	37
3 and 2	40
4 and 1	42
3 and 1	45
2 and 1	49
4, 3 and 2	55
4, 3 and 1	60
4, 2 and 1	64
3, 2 and 1	67
4, 3, 2 and 1	82

If the adjustment cannot be made with the capacitance 15 pF, add the capacitor 100p as shown on page 19.

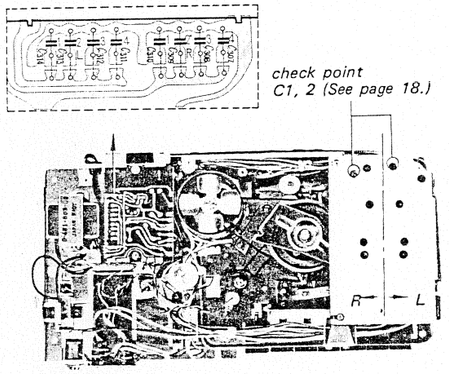


Fig. 5-2-5 Adjusting parts location

(5) Rec. Level Adjustment

1. Record a 333 Hz signal on a blank tape in the normal record mode.
2. Rewind the tape and read the playback LINE output level deviation from the standard output (0 dB, 0.775 V).
3. Adjust the semi-fixed resistor R136 (R236) 50 kΩ (B) to obtain the playback LINE output level of 0 dB (0.775 V) while repeating the step 1 and step 2. (See next page.)

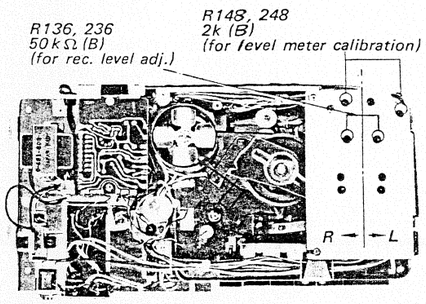


Fig. 5-2-6 Adjusting parts locations

Another Adjusting Method

1. Place the set in the normal record mode (signal frequency 333 Hz) and record the signal on a blank tape.
2. Play back the signal and read the LINE output level deviation from the standard output (0 dB, 0.775 V).
3. Place the set in the normal record mode again, read the level with the VTVM at the check point C1 (C2) on the audio amplifier circuit board shown on page 18 and increase or decrease the level by the deviation read in the preceding step 2 by adjusting the semi-fixed resistor R136 (R236) 50 kΩ (B).
4. Record the signal.
5. Play back the signal and make sure that the LINE output level is 0 dB (0.775 V).

(6) Level Meter Calibration

1. Place the set in the normal record mode (signal frequency 333 Hz).
2. Adjust the semi-fixed resistor R148 (R248) 2 kΩ (B) so that the pointer stops on the boundary between the red and black stripes. (See Fig. 5-2-6 on page 11.)

3. Measurement and Checking after the Adjustment

(1) PB Signal-to-Noise Ratio Measurement

1. Play back the SONY alignment tape P-4-L81 and read the LINE output level.
2. Place the set in PAUSE mode and read the LINE output level.
3. The difference between the values in the preceding steps 1 and 2 (signal-to-noise ratio) should be greater than 47 dB.

(2) Channel Balance Check

1. Place L-CH in the normal record mode (signal frequency 333 Hz) and read the L-CH LINE output level.
2. Place R-CH in a record mode with R-CH REC level control R219 20 kΩ (A) set at the same mechanical position as that of L-CH in the preceding step 1.
3. Deliver the same signal in the preceding step 1 and read the R-CH LINE output level.
4. The difference between the LINE output levels of L and R should be between −3 dB and +3 dB.

(3) Limiter Response Check

1. Place the set in the normal record mode (signal frequency 333 Hz).
2. Set the LIMITER switch to ON position and make sure that the LINE output level is between −0.5 dB (0.724 V) and +0.5 dB (0.815 V).
3. Increase the input signal level by 30 dB and make sure that the LINE output level is between +3.5 dB (1.14 V) and +6.5 dB (1.61 V).

(4) Bias Leakage Measurement

Place the set in the record mode with no signal input, set the REC level control R119 (R219) to the maximum position and read the LINE output level.
The LINE output level should be less than −25 dB (43.2 mV).

(5) AUX IN Maximum Sensitivity Measurement

1. Place the set in the record mode with the REC level control R119 (R219) set in the maximum position and deliver a 1 kHz signal of −20 dB (77.5 mV) to the AUX IN jack.
2. Decrease the input signal level until the LINE output level becomes 0 dB (0.775 V) and read the input signal level at the time. The input signal level should be less than −27 dB (38 mV).

(6) Overall Frequency Response Measurement

1. Place the set in the normal record mode (signal frequency 333 Hz).
2. Decrease the input signal level by 30 dB.
3. Vary the signal frequency from 333 Hz to 50 Hz.
4. Record the signals 50 Hz, 150 Hz, 1 kHz, 10 kHz and 12 kHz in order on a blank tape.
5. Play back the signals and read their LINE output levels.
   Deviation from the 1 kHz signal LINE output level is specified as follows:

Frequency	Deviation
50 Hz	+3 dB −10 dB
150 Hz	±3 dB
1 kHz	—
10 kHz	±3 dB
12 kHz	+3 dB −15 dB

(7) Overall Signal-to-Noise Ratio Measurement

1. Place the set in the normal record mode (signal frequency 333 Hz) and record the signal on a blank tape.
2. Turn off the input signal while keeping the input connection and continue the recording.
3. Play back the parts recorded with the signal and with no signal of the tape and read the difference between the both LINE output levels. The difference (overall signal-to-noise ratio) should be greater than 43 dB.

(8) Overall Harmonic Distortion Measurement
1. Place the set in the normal record mode (signal frequency 1 kHz) and record the signal on a blank tape.
2. Play back the signal and read the harmonic distortion with a distortion meter.
The harmonic distortion should be less than 3%.

(9) Erase Ratio Measurement
1. Place the set in the normal record mode (signal frequency 1 kHz).
2. Increase the signal input level by 15 dB and record the signal on a blank tape about twenty seconds.
3. Rewind the half of the recorded part and erase it with the REC level control R119 (R219) at the minimum position.
4. Play back the signal recorded part and erased part of the tape and read the output difference between the both parts through a 1 kHz band pass filter.
The deviation (erase ratio) should be greater than 60 dB.

(10) Cross-Talk (between the Channels) Measurement
1. Place the set in the normal record mode (signal frequency 1 kHz, input connection to R-CH only). As for L-CH, the REC level control R119 is set mechanically at the same position with that of R-CH and a dummy resistor of 600Ω is connected in parallel with the MIC jack.
2. Record the signal on a blank tape under the condition in the preceding step 1.
3. Play back the tape and read the LINE output difference between the R and L through a 1 kHz band pass filter. The difference should be greater than 25 dB.

(11) Cross-Talk (between the Tracks) Measurement
1. Place the set in the normal record mode (signal frequency 1 kHz, input connection to R-CH only). As for L-CH, the REC level control R119 is set mechanically at the same position with that of R-CH and a dummy resistor 600Ω connected in parallel with the MIC jack.
2. Record the signal on the one track of R-CH of a blank tape under the condition in the preceding step 1.
3. Play back the tape and read the R-CH LINE output level through a 1 kHz band pass filter.
4. Turn over the tape cassette, play back the other track of R-CH and read the R-CH LINE output level through a 1 kHz band pass filter.
5. The LINE output difference between the values read in the preceding steps 3 and 4 should be greater than 55 dB.

(12) Tape Speed Measurement
Play back the beginning and the end of the SONY alignment tape SPC-4 and read the LINE output signal frequency with a frequency counter. The LINE output signal frequency as for both the beginning and the end of the tape should be between 970 Hz and 1,030 Hz. The deviation in the LINE output signal frequency between the beginning and the end of the tape should be less than 10 Hz. If not, adjust the tape speed by changing the motor pulley.

Motor Pulley Part No.	Mark	Tape Speed
X-34830-13-1	1	for low
X-34830-13-2	2	for medium
X-34830-13-3	3	for high

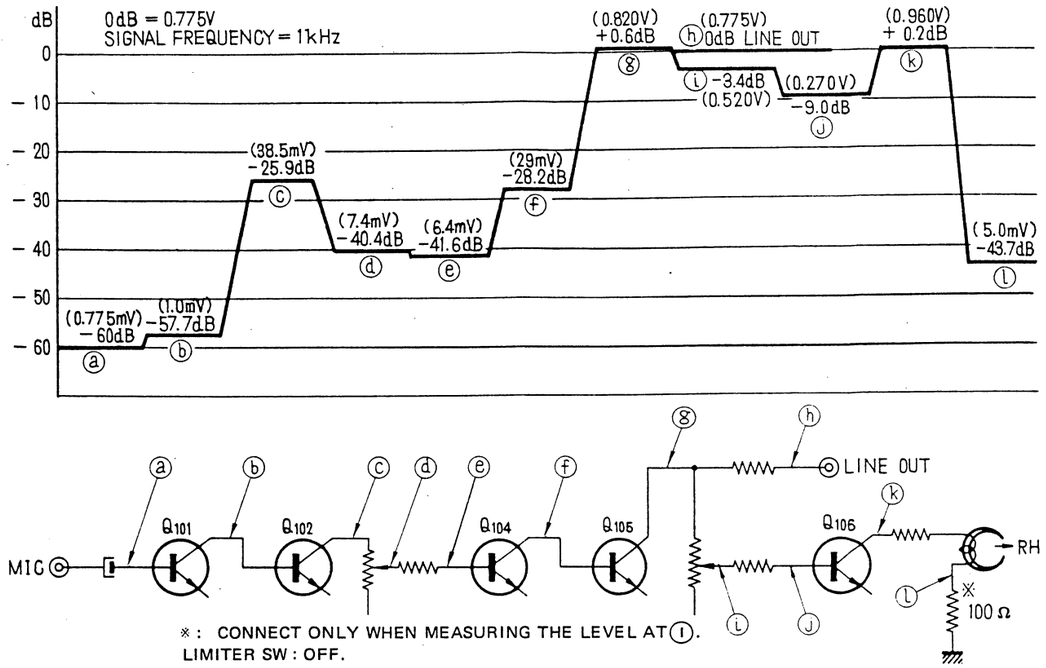
5-3. Adjustments or Checking after Parts Replacement or Reassembly

Parts	Adjustment or Measurement
FF/REW pulley ass'y	FF and REW torque measurement (page 7) FF/REW pulley adjustment (page 7)
tension arm ass'y	FWD torque measurement (page 7)
reel table	FWD, FF and REW torque measurement (page 7)
pinch roller	pinch roller pressure adjustment (page 8)
button ass'y	button height adjustment (page 8)
head deck ass'y, playback lever	head deck position adjustment (page 6)
instant stop lever (A), pause lever	PAUSE timing adjustment (page 9)
REC lever (A), rec./p.b. switch	rec./p.b. switch adjustment (page 8~9)
timing switch, timing switch lever	timing switch adjustment (page 8)
rec./p.b. head	head azimuth (page 10), recording bias (page 11), PB level (page 11), PB EQ (page 11) and REC level (page 11) adjustments overall frequency response measurement (page 12)
level meter	level meter calibration (page 12)
slide volume	channel balance check (page 12)

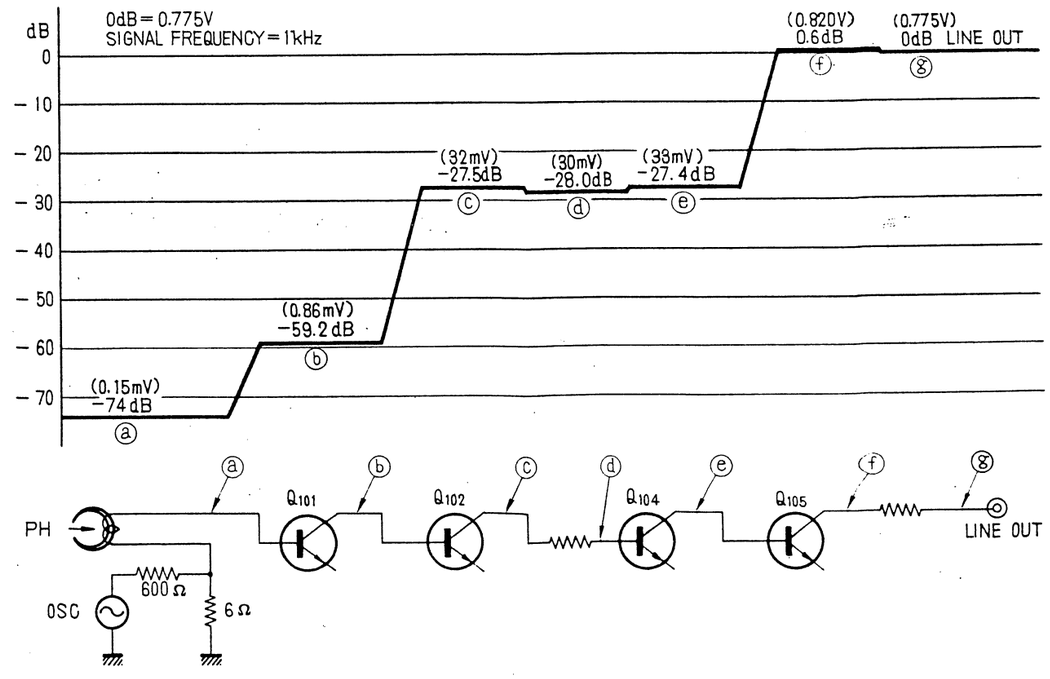
Note:
1. When replacing or reassembling the spring, hook the spring in the same direction of hooking portion as that of removed spring.
2. Take care of the belts not to be twisted.
3. Apply lock paint to the screws locked before.

6. LEVEL DIAGRAM

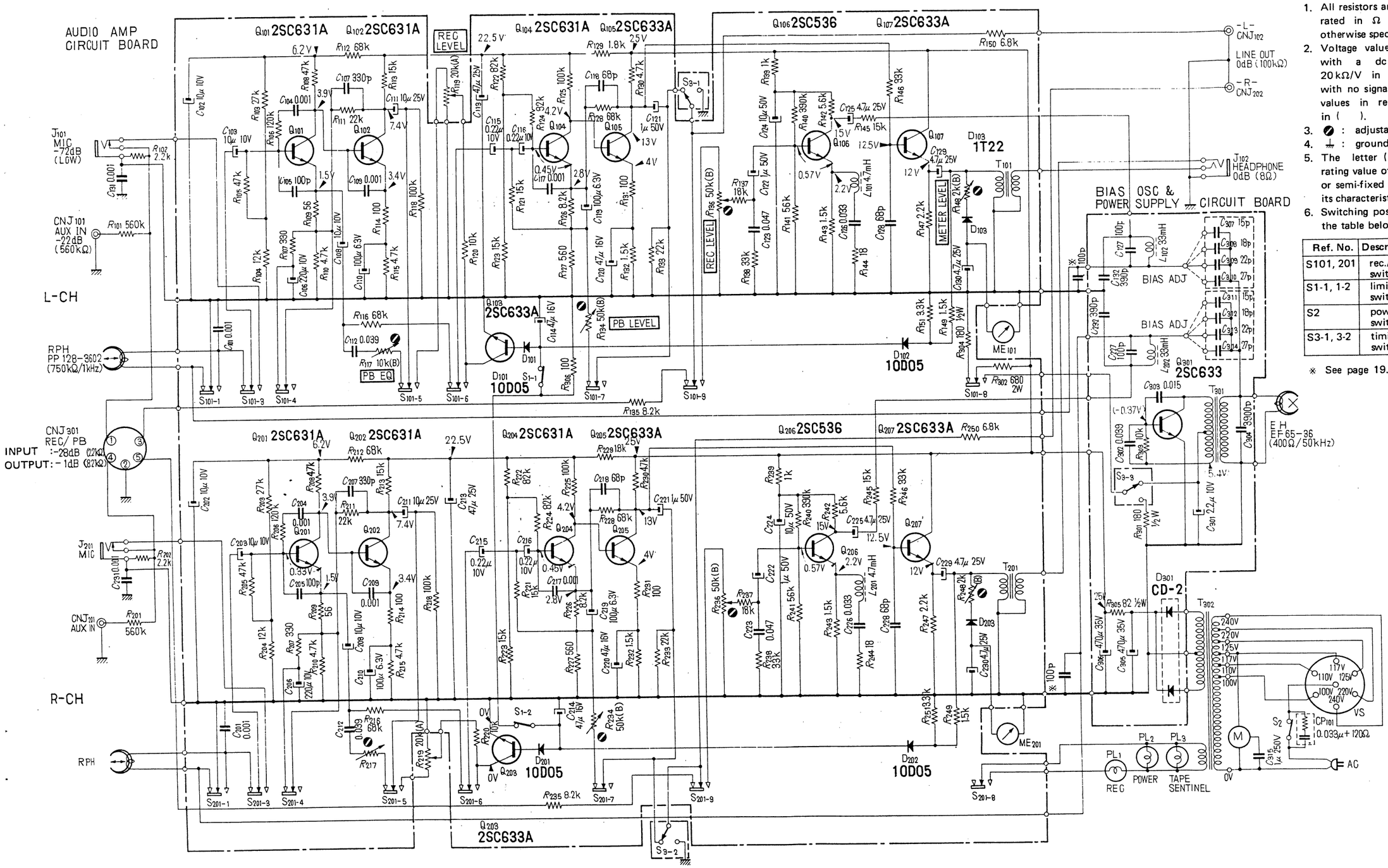
Record



Playback



7. SCHEMATIC DIAGRAM



Note:

1. All resistors and capacitors are rated in Ω and μF unless otherwise specified.
2. Voltage values are measured with a dc voltmeter of 20kΩ/V in playback mode with no signal input. Voltage values in record mode are in ( ).
3. ◐ : adjustable.
4. ⏚ : grounded to chassis.
5. The letter (B) suffixed to rating value of variable resistor or semi-fixed resistor indicates its characteristic.
6. Switching positions are as per the table below.

Ref. No.	Description	Position
S101, 201	rec./p.b. switch	playback
S1-1, 1-2	limiter switch	off
S2	power switch	on
S3-1, 3-2	timing switch	fwd.

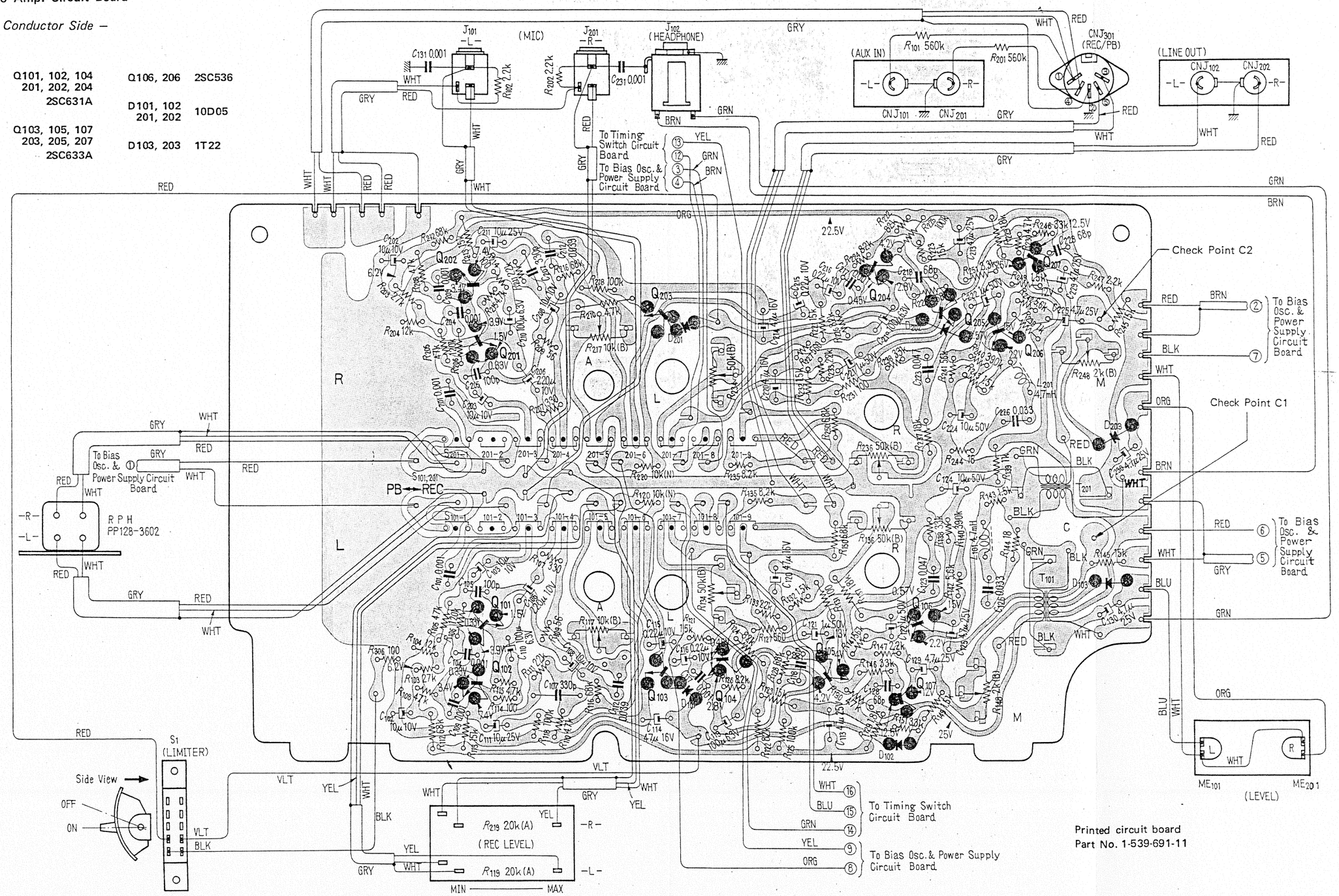
※ See page 19.

8. MOUNTING DIAGRAM

Audio Amp. Circuit Board

— Conductor Side —

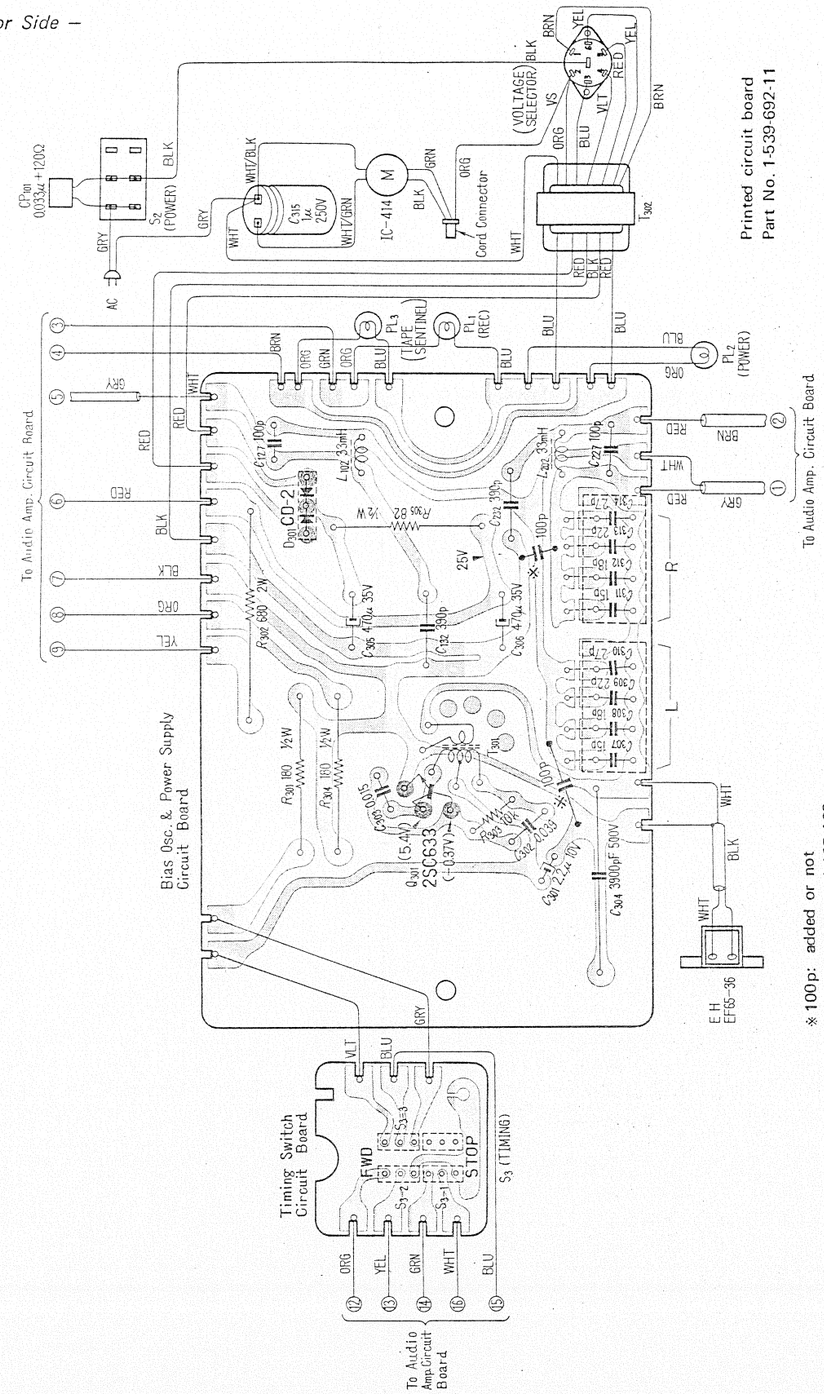
Q101, 102, 104 201, 202, 204 2SC631A	Q106, 206	2SC536
Q103, 105, 107 203, 205, 207 2SC633A	D101, 102 201, 202	10D05
	D103, 203	1T22



Printed circuit board
Part No. 1-539-691-11

Bias Osc. & Power Supply Circuit Board

– Conductor Side –

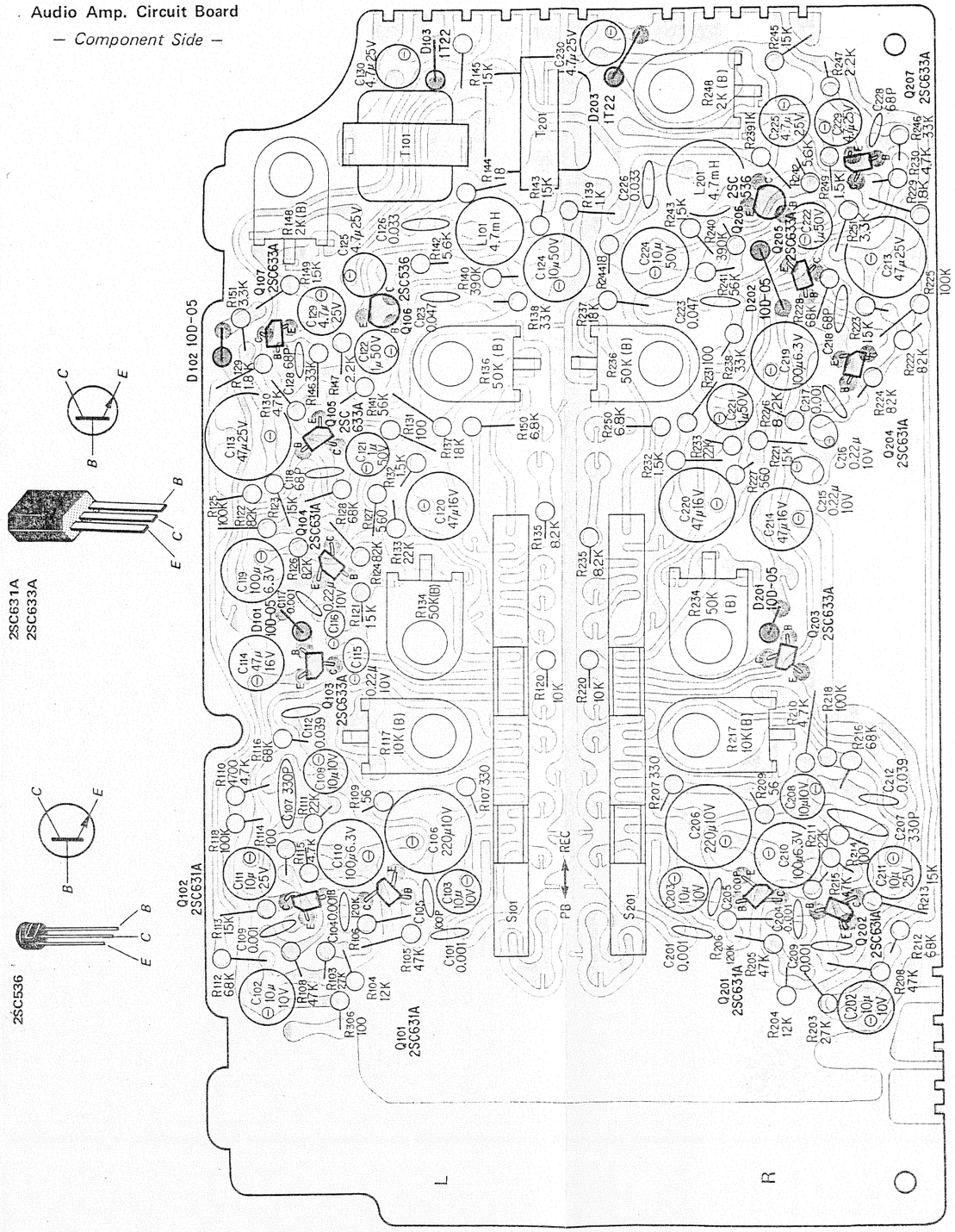


Printed circuit board
Part No. 1-539-692-11

※ 100p: added or not
Part No. 1-107-169
(See the recording bias adjustment on page 11.)

Audio Amp. Circuit Board

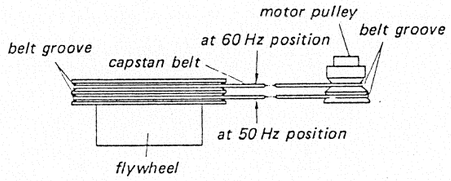
– Component Side –



9. MODIFICATION FOR DIFFERENT POWER LINE FREQUENCY

Change the belt grooves of the flywheel and the motor pulley as shown.

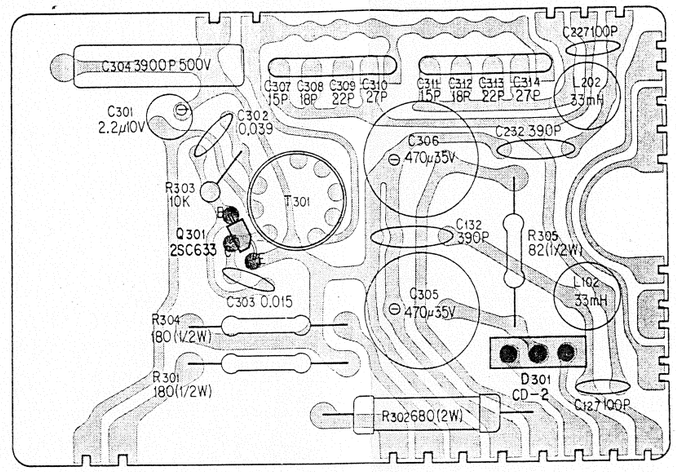
Note: The capstan belt should not be twisted.



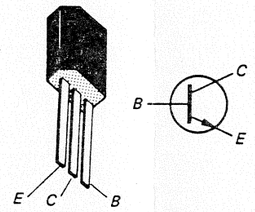
MEMO

Bias Osc. & Power Supply Circuit Board

— Component Side —



2SC633



Bias Adjusting Capacitor Mounting

The bias adjusting capacitor is a mold type capacitor including the four capacitors. When replace the capacitor, mount it as shown in Fig. 8-1.

Note: In early products this type is not used, when replace the capacitor, use this type.

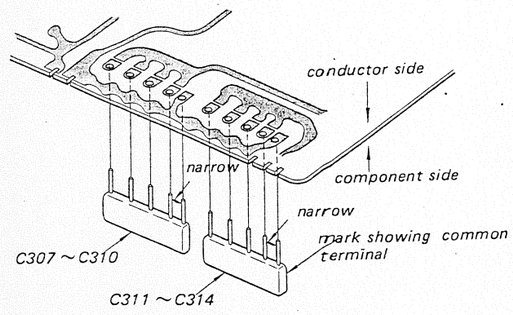


Fig. 8-1 Bias adjusting capacitor mounting

10. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	MOUNTED CIRCUIT BOARDS	
	X-34830-51-1	bias osc. & power supply
	X-34830-52-1	audio amp.
	SEMICONDUCTORS	
Q101, 201		transistor 2SC631A
Q102, 202		transistor 2SC631A
Q103, 203		transistor 2SC633A
Q104, 204		transistor 2SC631A
Q105, 205		transistor 2SC633A
Q106, 206		transistor 2SC536
Q107, 207		transistor 2SC633A
Q301		transistor 2SC633A
D101, 201		diode 10D05
D102, 202		diode 10D05
D103, 203		diode 1T22
D301		diode CD-2
	MICROINDUCTORS	
L101, 201	1-407-500	4.7 mH
L102, 202	1-407-212	33 mH
	TRANSFORMERS	
T101, 201	1-427-217	output
T301	1-433-132	bias osc.
T302	1-441-662	power
	CAPACITORS	
C101, 201	1-105-661-12	0.001μF 50V mylar
C102, 202	1-121-469	10μF 10V electrolytic
C103, 203	1-121-469	10μF 10V electrolytic
C104, 204	1-106-001-12	0.001μF 50V mylar
C105, 205	1-107-131	100pF 50V silvered mica
C106, 206	1-121-420	220μF 10V electrolytic
C107, 207	1-107-143	330pF 50V silvered mica
C108, 208	1-121-469	10μF 10V electrolytic
C109, 209	1-105-821-12	0.001μF 50V mylar
C110, 210	1-121-413	100μF 6.3V electrolytic
C111, 211	1-121-398	10μF 25V electrolytic
C112, 212	1-105-680-12	0.039μF 50V mylar
C113, 213	1-121-410	47μF 25V electrolytic
C114, 214	1-121-409	47μF 16V electrolytic
C115, 215	1-127-020	0.22μF 10V electrolytic
C116, 216	1-127-020	0.22μF 10V electrolytic
C117, 217	1-105-821-12	0.001μF 50V mylar
C118, 218	1-107-127	68pF 50V silvered mica
C119, 219	1-121-413	100μF 6.3V electrolytic
C120, 220	1-121-409	47μF 16V electrolytic
C121, 221	1-121-391	1μF 50V electrolytic
C122, 222	1-121-391	1μF 50V electrolytic
C123, 223	1-105-681-12	0.047μF 50V mylar
C124, 224	1-121-738	10μF 50V electrolytic
C125, 225	1-121-395	4.7μF 25V electrolytic
C126, 226	1-106-037-12	0.033μF 50V mylar
C127, 227	1-107-004	100pF 50V silvered mica
C128, 228	1-107-127	68pF 50V silvered mica
C129, 229	1-121-395	4.7μF 25V electrolytic
C130, 230	1-121-395	4.7μF 25V electrolytic
C131, 231	1-105-821-12	0.001μF 50V mylar
C132, 232	1-107-060	390pF 50V silvered mica
C301	1-127-076	2.2μF 10V electrolytic
C302	1-105-680-12	0.039μF 50V mylar
C303	1-105-675-12	0.015μF 50V mylar
C304	1-129-795	3,900pF 500V polyethylene
C305	1-121-361	470μF 35V electrolytic
C306	1-121-361	470μF 35V electrolytic
C307	1-107-253	15pF 500V silvered mica
△ C308	1-107-253	18pF 500V silvered mica
△ C309	1-107-253	22pF 500V silvered mica
C310	1-107-253	27pF 500V silvered mica
C311	1-107-253	15pF 500V silvered mica
C312	1-107-253	18pF 500V silvered mica
△ C313	1-107-253	22pF 500V silvered mica
C314	1-107-253	27pF 500V silvered mica
C315	1-113-146	1μF 250V MP

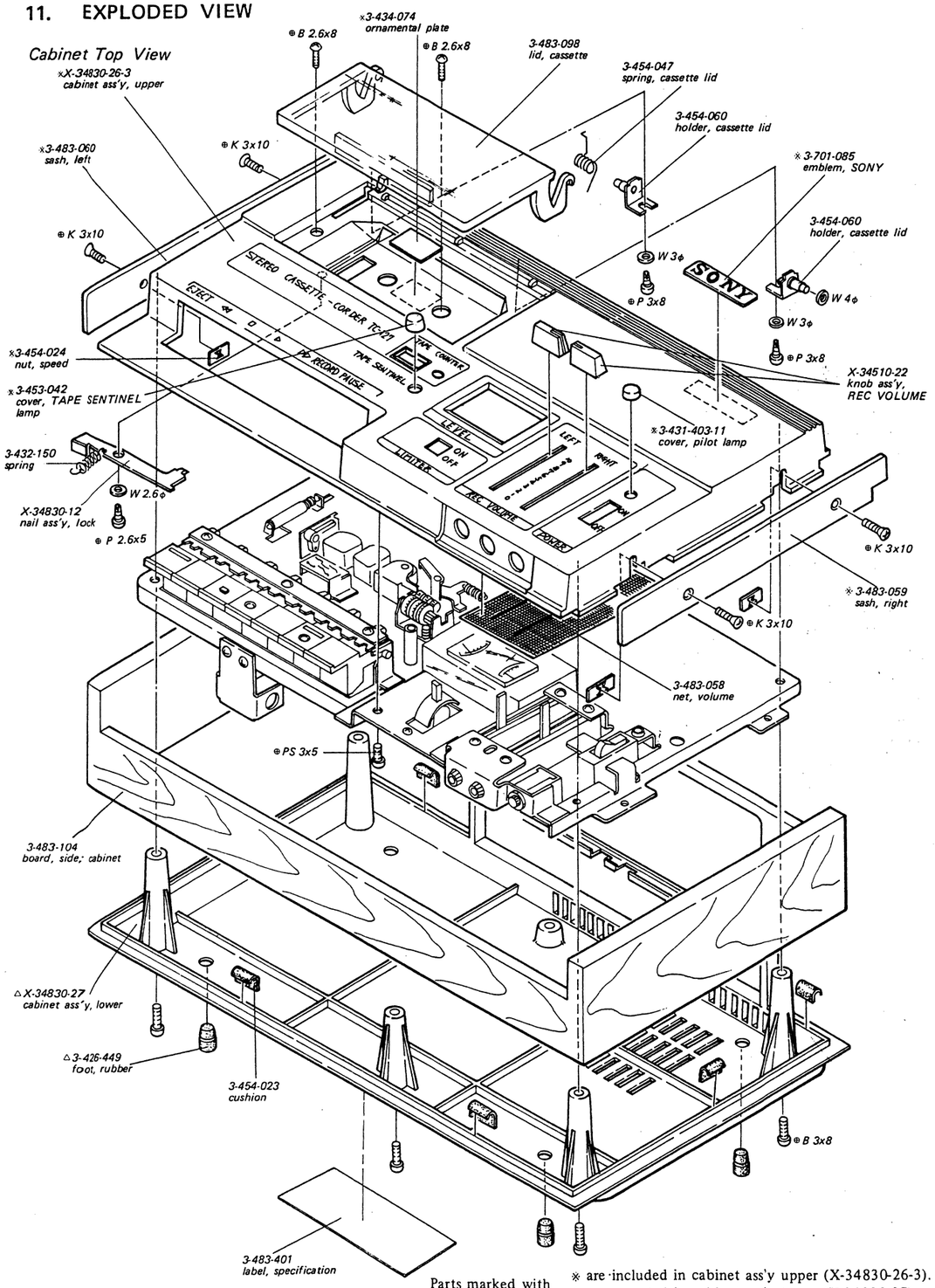
△ : molded in one

	RESISTORS		
R101, 201	1-244-739	560kΩ	¼W carbon
R102, 202	1-242-687	3.9kΩ	¼W carbon
R103, 203	1-242-707	27kΩ	¼W carbon
R104, 204	1-242-699	12kΩ	¼W carbon
R105, 205	1-242-713	47kΩ	¼W carbon
R106, 206	1-242-723	120kΩ	¼W carbon
R107, 207	1-242-661	330Ω	¼W carbon
R108, 208	1-242-713	47kΩ	¼W carbon
R109, 209	1-242-643	56Ω	¼W carbon
R110, 210	1-242-689	4.7kΩ	¼W carbon
R111, 211	1-242-705	22kΩ	¼W carbon
R112, 212	1-242-717	68kΩ	¼W carbon
R113, 213	1-242-701	15kΩ	¼W carbon
R114, 214	1-242-649	100Ω	¼W carbon
R115, 215	1-242-689	4.7kΩ	¼W carbon
R116, 216	1-242-717	68kΩ	¼W carbon
R117, 217	1-221-401	10kΩ (B)	semi-fixed
R118, 218	1-242-721	100kΩ	¼W carbon
R119, 219	1-222-391	20k/20kΩ	variable (REC LEVEL)
R120, 220	1-242-697	10kΩ	¼W carbon
R121, 221	1-242-701	15kΩ	¼W carbon
R122, 222	1-242-719	82kΩ	¼W carbon
R123, 223	1-242-701	15kΩ	¼W carbon
R124, 224	1-242-719	82kΩ	¼W carbon
R125, 225	1-242-721	100kΩ	¼W carbon
R126, 226	1-242-695	8.2kΩ	¼W carbon
R127, 227	1-242-667	560Ω	¼W carbon
R128, 228	1-242-717	68kΩ	¼W carbon
R129, 229	1-242-679	1.8kΩ	¼W carbon
R130, 230	1-242-689	4.7kΩ	¼W carbon
R131, 231	1-242-649	100Ω	¼W carbon
R132, 232	1-242-677	1.5kΩ	¼W carbon
R133, 233	1-242-705	22kΩ	¼W carbon
R134, 234	1-221-953	50kΩ (B)	semi-fixed
R135, 235	1-242-695	8.2kΩ	¼W carbon
R136, 236	1-221-953	50kΩ (B)	semi-fixed
R137, 237	1-242-703	18kΩ	¼W carbon
R138, 238	1-242-709	33kΩ	¼W carbon
R139, 239	1-242-673	1kΩ	¼W carbon
R140, 240	1-242-735	390kΩ	¼W carbon
R141, 241	1-242-715	56kΩ	¼W carbon
R142, 242	1-242-691	5.6kΩ	¼W carbon
R143, 243	1-242-677	1.5kΩ	¼W carbon
R144, 244	1-242-631	18Ω	¼W carbon
R145, 245	1-242-701	15kΩ	¼W carbon
R146, 246	1-242-709	33kΩ	¼W carbon
R147, 247	1-242-681	2.2kΩ	¼W carbon
R148, 248	1-221-962	2kΩ (B)	semi-fixed
R149, 249	1-242-677	1.5kΩ	¼W carbon
R150, 250	1-242-693	6.8kΩ	¼W carbon
R151, 251	1-242-685	3.3kΩ	¼W carbon
R301	1-202-555	180Ω	½W composition
R302	1-206-044	680Ω	2W metal oxide
R303	1-242-697	10kΩ	¼W carbon
R304	1-202-555	180Ω	½W composition
R305	1-202-547	82Ω	½W composition
R306	1-242-649	100Ω	¼W carbon
	SWITCHES		
S101, 201	1-514-454	REC./P.B. SELECTOR	
S1-1, S1-2	1-514-768	lever, LIMITER	
S2	1-513-345-31	seesaw, POWER	
S3-1, S3-2, S3-3	1-513-273	slide, TIMING	
	JACKS		
J101, 201	1-507-251	MIC	
J102	1-507-282	binaural, HEADPHONE	
CNJ101, 201	1-507-142	phono 2P; AUX IN	
CNJ102, 202	1-507-142	phono 2P; LINE OUT	
CNJ301	1-509-029	REC./P.B.	
	HEADS		
E.H	8-828-136	erase (EF65-36)	
R.P.H	8-829-136-20	rec./p.b. (PP128-3602)	
	MISCELLANEOUS		
M	8-832-414	motor (IC-414)	
CP101	1-231-057	encapsulated component C-R 0.033μF + 120Ω 500V	
VS	1-509-064-13S	voltage selector	
PL1, 2, 3	1-518-093-21	lamp, pilot (POWER·REC·TAPE SENTINEL)	
ME101, 102	1-524-051-13	meter, LEVEL	
	1-534-487-22	cord, power	
	1-535-506	connector, lead wire	
	1-539-693-11	printed circuit board, timing switch	
	1-539-692-11	printed circuit board, bias osc. & power supply	
	1-539-691-11	printed circuit board, audio amp.	
	1-107-169	capacitor 100p, silvered mica (added or not when the recording bias adjustment.)	

When ordering replacement parts you should use PART NUMBER listed on the ELECTRICAL PARTS LIST or the EXPLODED VIEW. The reference number should not be used for ordering purposes.

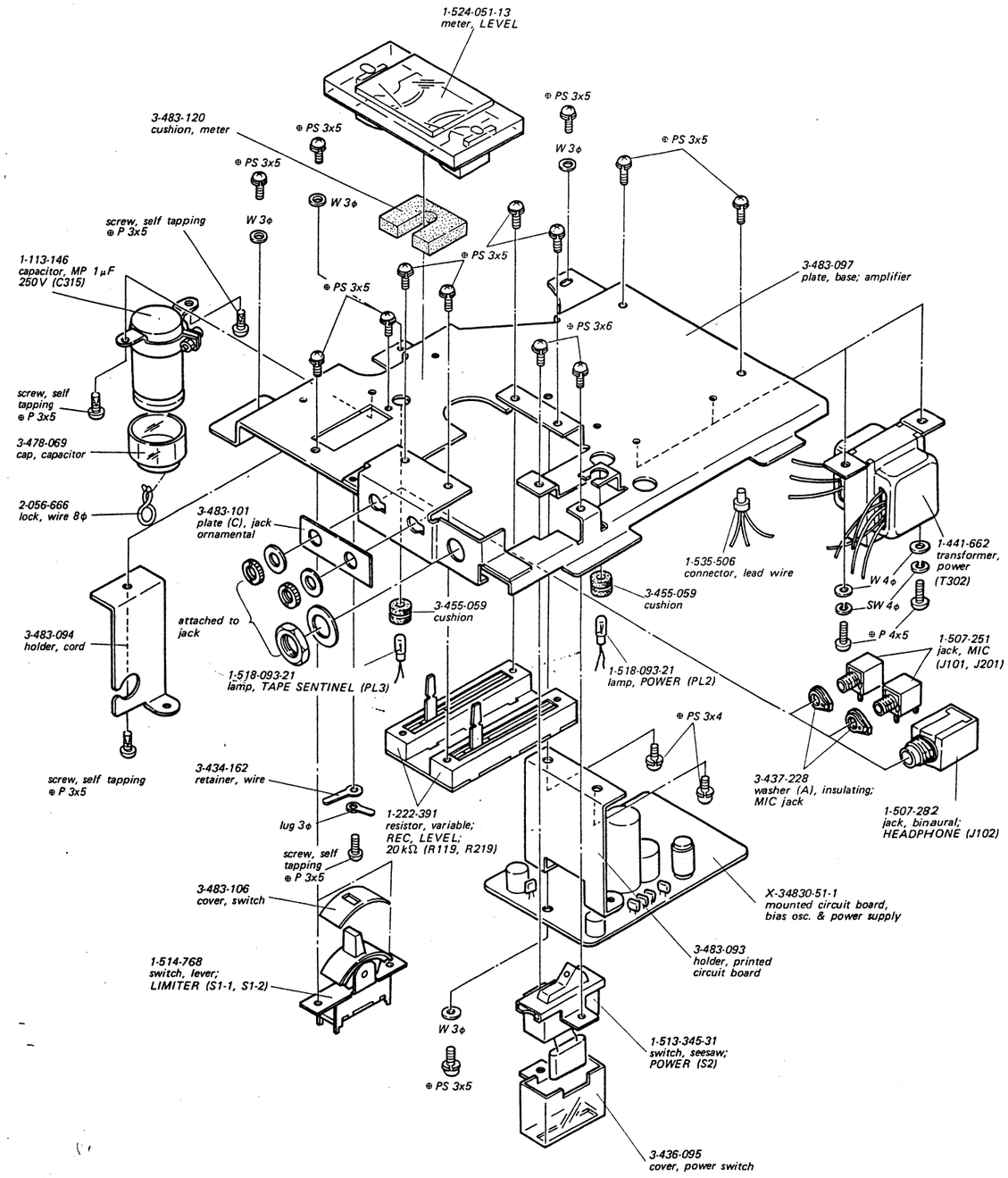
11. EXPLODED VIEW

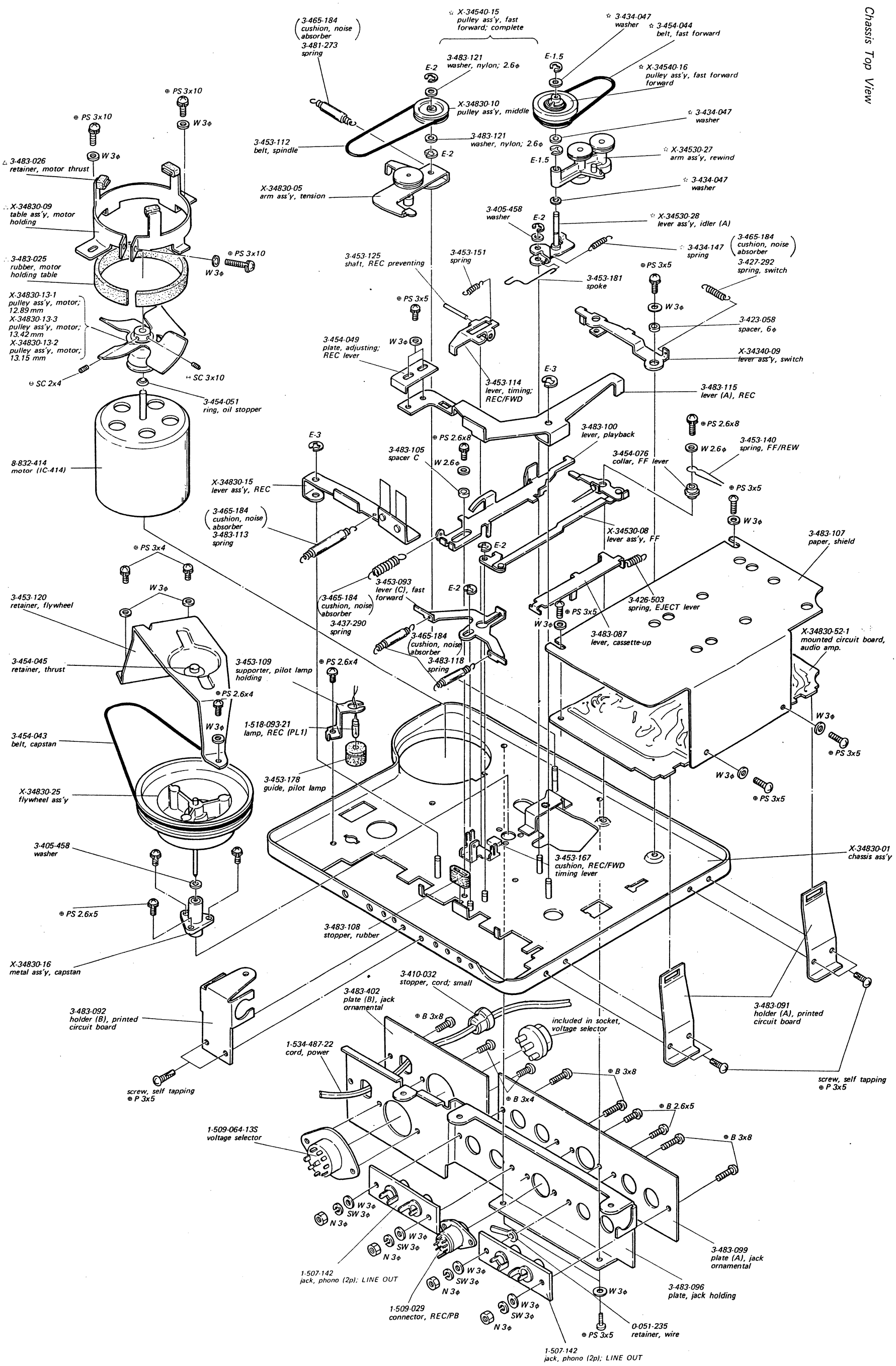
Cabinet Top View



Parts marked with ※ are included in cabinet ass'y upper (X-34830-26-3).
△ are included in cabinet ass'y lower (X-34830-27).

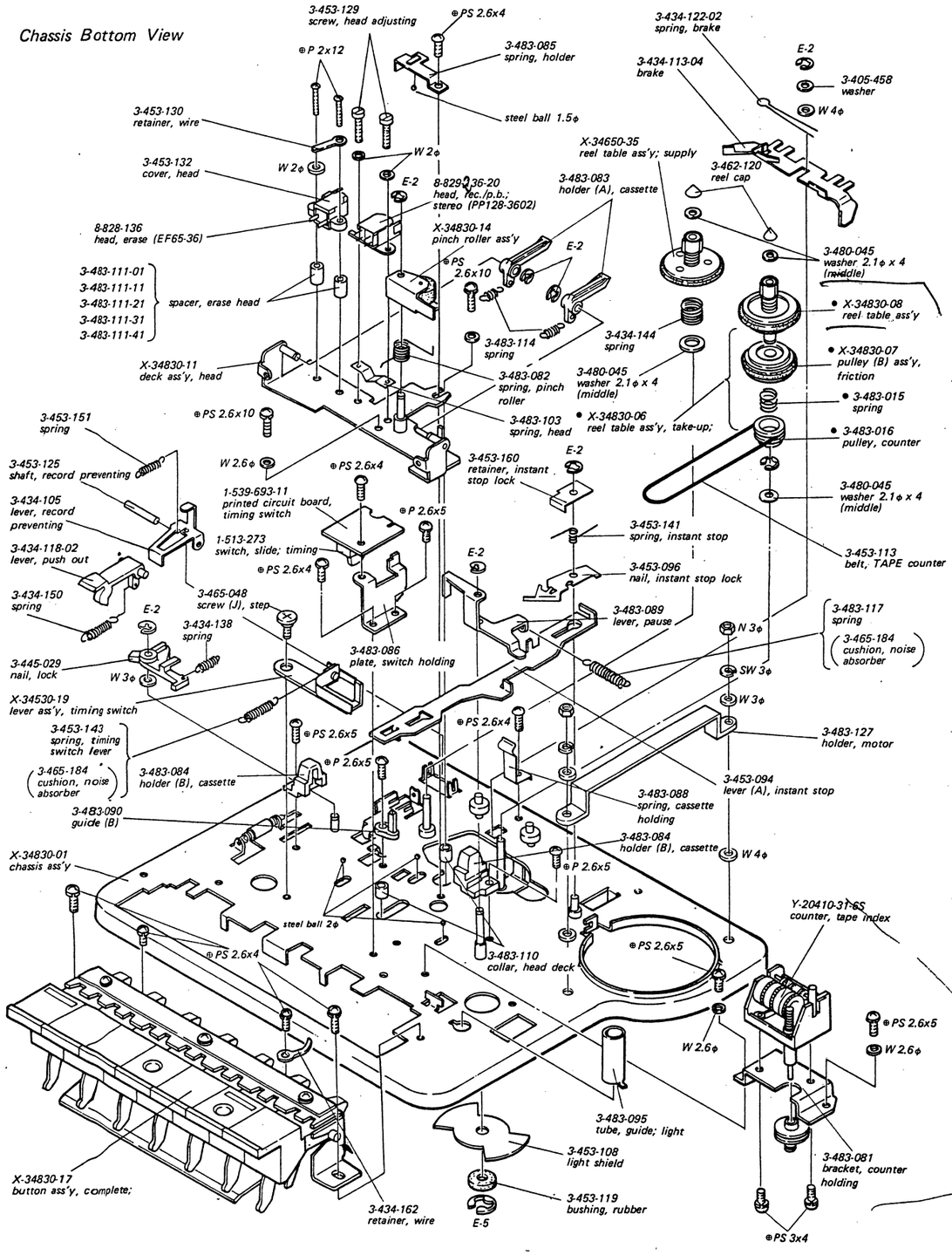
Amp. Chassis Top View





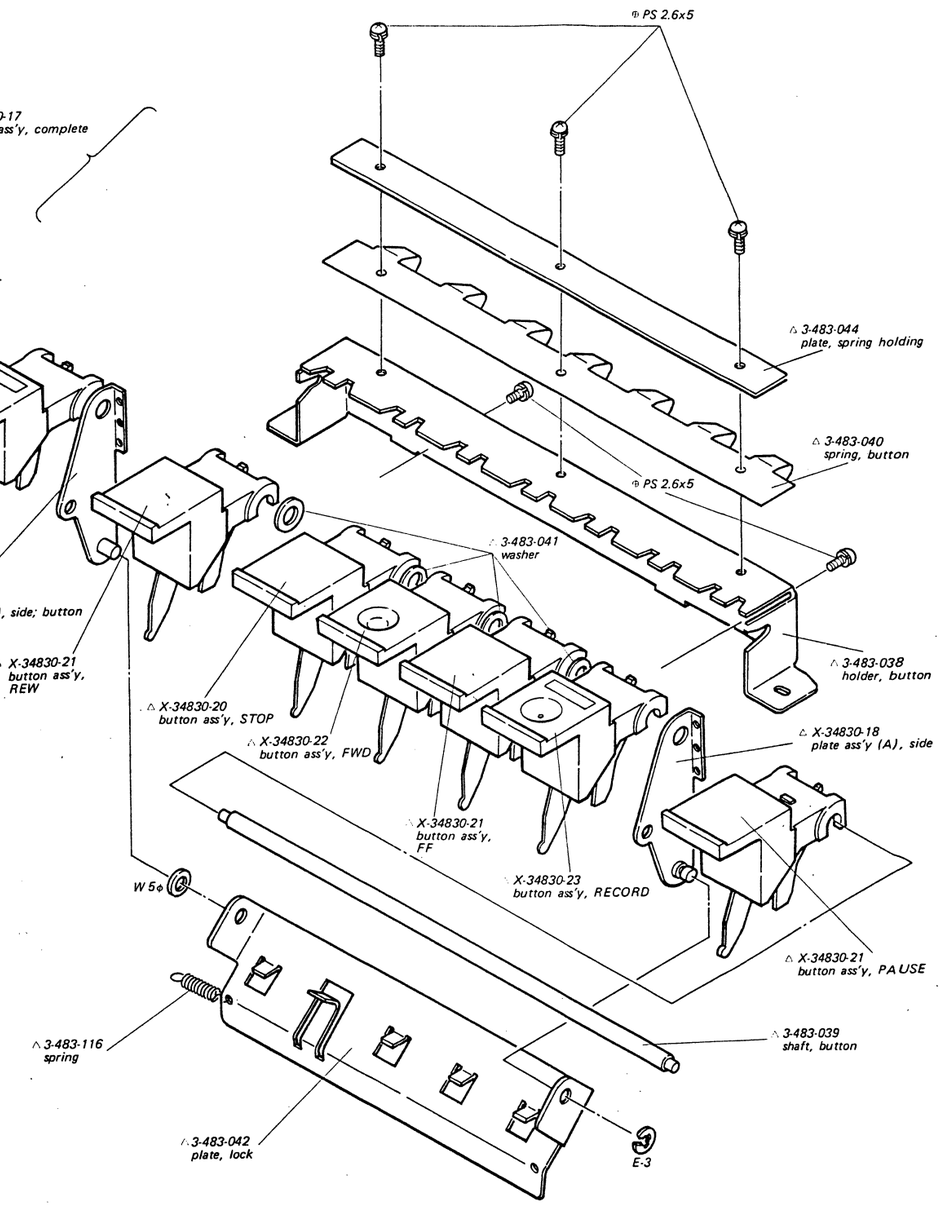
Parts marked with ☆ are included pulley ass'y, fast forward; complete (X-34540-15).
△ are included in table ass'y, motor holding (X-34830-09).

Chassis Bottom View



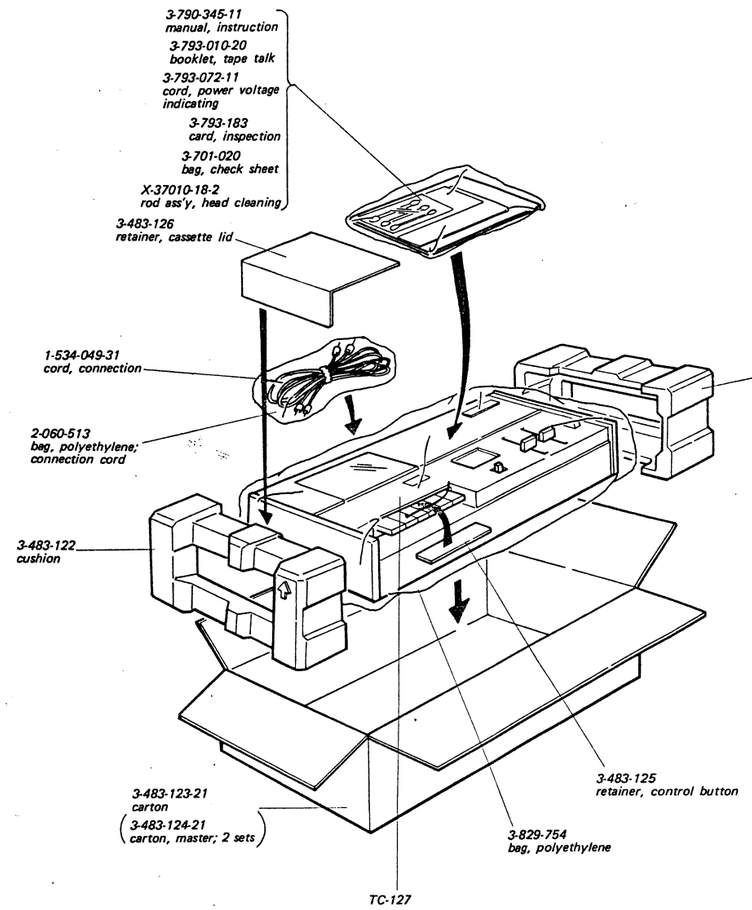
Parts marked with • are included in reel table ass'y, take-up (X-34830-06).

Button Holder Top View


⊕PS 2.6x5
△ X-34830-17 button ass'y, complete
△ X-34830-24 button ass'y, EJECT
△ 3-483-044 plate, spring holding
△ 3-483-040 spring, button
⊕PS 2.6x5
△ 3-483-041 washer
△ X-34830-19 plate ass'y (B), side; button
△ X-34830-21 button ass'y, REW
△ X-34830-20 button ass'y, STOP
△ X-34830-22 button ass'y, FWD
△ 3-483-038 holder, button
△ X-34830-18 plate ass'y (A), side
X-34830-21 button ass'y, FF
X-34830-23 button ass'y, RECORD
△ X-34830-21 button ass'y, PAUSE
W 5ϕ
△ 3-483-116 spring
△ 3-483-039 shaft, button
△ 3-483-042 plate, lock
E-3

Parts marked with △ are included in pushbutton ass'y (X-34830-17).

Packing


3-790-345-11
manual, instruction
3-793-010-20
booklet, tape talk
3-793-072-11
cord, power voltage indicating
3-793-183
card, inspection
3-701-020
bag, check sheet
X-37010-18-2
rod ass'y, head cleaning
3-483-126
retainer, cassette lid
1-534-049-31
cord, connection
2-060-513
bag, polyethylene; connection cord
3-483-122
cushion
3-483-122
cushion
3-483-123-21
carton
3-483-124-21
carton, master; 2 sets
3-483-125
retainer, control button
3-829-754
bag, polyethylene
TC-127

12. HARDWARES

Part No.	Description
SCREWS	
7-621-255-75	⊕ P 2 x 12
7-621-259-25	⊕ P 2.6 x 4
7-621-259-35	⊕ P 2.6 x 5
7-621-259-45	⊕ P 2.6 x 6
7-621-259-55	⊕ P 2.6 x 8
7-621-259-65	⊕ P 2.6 x 10
7-621-710-39	⊖ SC 2 x 4
7-621-770-67	⊕ B 2.6 x 6
7-621-770-99	⊕ B 2.6 x 8
7-682-545-04	⊕ B 3 x 4
7-682-548-04	⊕ B 3 x 8
7-682-645-01	⊕ PS 3 x 4
7-682-646-01	⊕ PS 3 x 5
7-682-647-01	⊕ PS 3 x 6
7-682-649-01	⊕ PS 3 x 10
7-682-659-01	⊕ PS 4 x 5
7-685-132-01	⊕ P 2.6 x 5, self tapping
7-685-144-31	⊕ P 3 x 5, self tapping
7-685-146-01	⊕ P 3 x 8, self tapping
WASHERS	
7-623-105-02	2φ (small)
7-623-105-12	2φ (middle)
7-623-107-02	2.6φ (small)
7-623-107-12	2.6φ (middle)
7-623-108-02	3φ (small)
7-623-110-02	4φ (small)
7-623-110-12	4φ (middle)
7-623-207-22	2.6φ, spring
7-623-208-22	3φ, spring
RETAINING RINGS	
7-624-102-01	E-1.5
7-624-104-01	E-2
7-624-106-01	E-3
7-624-108-01	E-4
7-624-109-01	E-5
STEEL BALLS	
7-671-111-11	1.5φ
7-671-112-01	2φ
NUT	
7-685-013-00	3φ

Hardware Nomenclature

P – Pan Head Screw .....

PS – Pan Head Screw with Spring Washer .....

K – Flat Countersunk Head Screw ...

B – Binding Head Screw .....

RK – Oval Countersunk Head Screw ..

T – Truss Head Screw .....

R – Round Head Screw .....

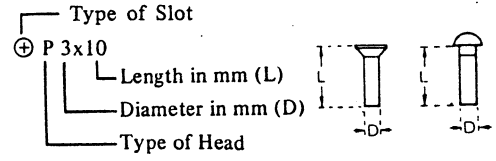
F – Flat Fillister Head Screw .....

SC – Set Screw .....

E – Retaining Ring (E Washer) .....

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –



SONY CORPORATION